

## **1     *Site Planning and Pond Construction***

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Perhaps the most important aspect of pond management is deciding where and how to build your pond. Many problems can be avoided if the pond is properly designed and constructed. The Natural Resources Conservation Service (NRCS) publication *Ponds – Planning, Design, Construction* (Agriculture Handbook 590) contains detailed information on design surveys, site selection, drainage area, pond layouts, soil analysis and spillway construction. Contact your county NRCS office to obtain a copy. Your county NRCS staff can provide additional information on cost estimation and other aspects of pond construction, or refer you to a reputable engineer for assistance. To take advantage of these services, contact the NRCS during the initial stages of pond planning.

There are two general types of ponds:

- Watershed or embankment ponds, which are formed by constructing a dam to collect stream or surface runoff,
- Excavated ponds, which are formed by digging down into the water table in an area that is relatively flat.

The type of pond that is best for your site will be determined to a great extent by the topography of the land and the principal use of the pond.

It is usually necessary to move more earth to construct an excavated pond than a watershed (embankment) pond. Watershed ponds, however, are more likely to have problems with muddy water, high siltation rates, rapid fluctuations in flow rates, aquatic weeds, temperature fluctuations, and wild fish invasions. Large watershed ponds can benefit from construction of a small settling pond immediately upstream to reduce turbidity, sedimentation, and weed problems in the large pond.

### **Permits**

After choosing a site, contact a representative of the U.S. Army Corps of Engineers to make sure that the site is not located in a wetland area, especially if the pond is to be of the watershed type. Streams are considered wetland areas. If pond construction involves placing a dam across a stream or affects a wetland in other ways, you are required by law to obtain a 404 permit from the Corps of Engineers before starting construction.

Additional permits may also be required for certain types of watershed ponds. If the dam height will exceed 15 feet and impounded water volume (at the dam crest) will exceed 10 acre-feet, or if the dam is deemed to be a high hazard structure that would cause significant property damage or loss of life upon failure, you are required to obtain two additional permits (one for construction